

TABLE 2.—Free-air resultant winds based on pilot balloon observations made near 5 p. m., E. S. T. (2200 G. C. T.) during April 1946. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Velocities in meters per second—Continued

	Oakland, Calif. (8 m.)	Oklahoma City, Okla. (396 m.)	Omaha, Nebr. (306 m.)	Phoenix, Ariz. (338 m.)	Rapid City, S. Dak. (982 m.)	St. Louis, Mo. (181 m.)	St. Paul, Minn. (225 m.)	San An- tonio, Tex. (240 m.)	San Diego, Calif. (15 m.)	Sault Ste. Marie, Mich. (225 m.)	Seattle, Wash. (116 m.)	Spokane, Wash. (603 m.)	Washing- ton, D. C. (24 m.)
Surface.....	30 262 5.4	29 180 2.5	29 223 1.0	30 235 0.8	30 10 1.7	29 7 0.4	30 299 1.7	30 124 2.7	29 263 3.9	26 280 3.1	29 225 2.8	29 229 2.8	28 272 3.1
500.....	30 288 3.4	29 184 2.6	29 206 1.2	30 240 1.1	---	29 290 1.2	30 290 1.7	30 138 3.5	29 281 2.8	26 278 4.2	29 224 1.6	---	28 282 5.0
1,000.....	27 304 2.4	27 183 3.0	29 213 1.4	30 234 1.5	30 9 1.7	28 257 2.6	28 311 2.9	30 141 3.2	25 268 1.7	25 278 4.2	27 218 5.2	29 227 4.7	27 280 5.9
1,500.....	26 235 1.6	26 214 3.8	27 237 2.4	30 214 1.9	30 317 2.9	27 256 4.1	27 291 4.2	28 154 3.0	25 261 1.4	23 294 6.1	26 216 5.4	29 230 5.7	26 287 9.0
2,000.....	26 237 2.2	23 247 5.2	25 271 2.3	30 202 3.0	30 284 3.4	26 268 6.9	25 292 5.6	25 187 3.7	25 251 1.6	22 298 6.7	21 220 6.6	26 236 6.2	26 296 11.9
2,500.....	25 244 2.9	23 257 7.0	25 277 5.3	30 200 4.0	28 262 4.9	23 284 9.2	23 304 9.7	22 207 3.2	23 276 2.1	18 294 7.7	18 238 7.6	20 228 9.9	25 302 15.0
3,000.....	24 242 3.8	21 272 8.0	25 287 8.4	29 307 4.4	26 267 7.0	20 291 10.8	21 306 12.0	21 220 2.5	21 274 3.9	14 301 8.9	16 246 8.2	16 234 7.8	21 302 16.8
4,000.....	22 240 4.0	20 276 9.5	21 289 13.1	27 308 5.1	25 278 11.7	19 288 14.2	19 307 15.6	19 248 4.1	21 258 5.6	10 319 13.5	---	---	16 301 22.0
5,000.....	20 253 6.3	20 278 10.8	19 296 15.3	26 345 5.5	20 282 17.7	15 306 16.5	15 306 17.1	17 288 5.9	18 249 8.4	---	---	---	13 301 23.9
6,000.....	19 257 6.7	16 284 10.7	17 295 16.8	23 247 6.0	17 281 20.0	10 308 20.4	11 307 18.6	16 265 7.1	18 244 10.7	---	---	---	13 300 27.6
8,000.....	17 260 12.1	11 292 10.8	---	22 256 9.1	---	---	---	13 261 11.8	12 251 16.3	---	---	---	---
10,000.....	11 242 13.1	---	---	13 265 8.4	---	---	---	---	---	---	---	---	---
12,000.....	---	---	---	10 262 11.3	---	---	---	---	---	---	---	---	---

TABLE 3.—Maximum free-air wind velocities (m. p. s.) for different sections of the United States based on pilot balloon observations during April 1946

Section	Surface to 2,500 meters (m. s. l.)				Above 2,500 to 5,000 meters (m. s. l.)				Above 5,000 meters (m. s. l.)			
	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date
Northeast <sup>1</sup>	40.0	NNW.	2,164	17	42.4	NNW.	4,816	7	64.8	NW.	9,477	19
East-Central <sup>2</sup>	43.3	NW.	2,500	5	49.2	WNW.	4,705	4	68.4	W.	15,204	17
Southeast <sup>3</sup>	33.3	W.	2,266	12	47.2	NW.	4,657	27	65.0	WNW.	16,001	29
North-Central <sup>4</sup>	59.4	SW.	1,362	19	53.8	WNW.	4,892	2	68.7	NW.	8,407	18
Central <sup>5</sup>	46.0	WSW.	1,405	1	44.0	NNW.	5,000	26	80.0	WSW.	11,170	4
South-Central <sup>6</sup>	37.4	SW.	1,008	1	40.6	WNW.	4,680	30	75.2	WNW.	17,824	1
Northwest <sup>7</sup>	37.0	W.	1,474	26	57.5	WSW.	2,900	17	69.9	SW.	11,733	25
West-Central <sup>8</sup>	43.2	WNW.	2,500	3	46.7	NW.	2,867	3	67.2	W.	10,196	9
Southwest <sup>9</sup>	42.2	W.	2,500	7	51.5	WSW.	5,000	1	80.6	WSW.	7,437	1

<sup>1</sup> Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, and northern Ohio.

<sup>2</sup> Delaware, Maryland, Virginia, West Virginia, southern Ohio, Kentucky, eastern Tennessee, and North Carolina.

<sup>3</sup> South Carolina, Georgia, Florida, and Alabama.

<sup>4</sup> Michigan, Wisconsin, Minnesota, North Dakota, and South Dakota.

<sup>5</sup> Indiana, Illinois, Iowa, Nebraska, Kansas, and Missouri.

<sup>6</sup> Mississippi, Arkansas, Louisiana, Oklahoma, Texas (except El Paso), and western Tennessee.

<sup>7</sup> Montana, Idaho, Washington, and Oregon.

<sup>8</sup> Wyoming, Colorado, Utah, northern Nevada, and northern California.

<sup>9</sup> Southern California, southern Nevada, Arizona, New Mexico, and extreme west Texas.

## RIVER STAGES AND FLOODS FOR APRIL 1946

By C. R. JORDAN

Precipitation during April was below normal over most of the country, with large areas receiving less than one-half of the usual amount. Many stations had less than one-fourth of their normal rainfall. The exceptions to the below-normal precipitation were the Carolinas; southern Texas; Arkansas, southern Missouri, and western Tennessee; northern New England; the coastal area of Washington; and a few scattered areas in Nevada, Arizona, and Colorado.

There was no extensive flooding during the month. High stages in some streams were carried over from March, and there was some overflow in Idaho due to early snow melt.

**Atlantic Slope and East Gulf of Mexico drainage.**—Several stations in the Southeastern States were a little above flood stage during the first days of the month, but precipitation was light during April, and practically all of the streams fell below flood stage during the first week. Heavy rains fell in southern Alabama on the 24th and 25th, resulting in very light overflow of the lower Choctawhatchee River. The lower Tombigbee and Pearl Rivers fell below flood stage for the first time since January.

**Mississippi System.**—The Mississippi River was in

moderate flood at the beginning of April from Gordons Ferry, Iowa, to Grafton, Ill., but fell steadily and was within its banks in a few days. Flood stages were reached at numerous stations scattered throughout the Mississippi Basin.

Rivers in the Yazoo Basin fell below flood stage for the first time since January. They were at moderate stages at the beginning of January; as a result of general rains averaging about 8 inches from January 3-11, there were rapid rises, with flood stage reached at Swan Lake, Miss., on the 7th, at Greenwood on the 14th, and at Yazoo City on the 15th. For the 3 months, January, February, and March, rainfall over the Yazoo Basin averaged more than 25 inches and was fairly well distributed throughout the period, so that flood stage or above was maintained for 102 consecutive days at Swan Lake, 54 days at Greenwood, and 104 days at Yazoo City. Following the heavy rains of February 9-10, the stage at Greenwood reached a peak of 39.8 feet on February 17, the second highest gage reading of record for that place.

The total area overflowed in the Yazoo and Big Black Basins amounted to approximately one and one-fourth million acres, of which an estimated 300,000 acres was cultivable land. As there was little agricultural activity at the time of this flood, the loss of growing or of prospective crops was not large. While much land was still under water at the close of April, a considerable area

was free of water early enough in the season for normal planting.

*West Gulf of Mexico drainage.*—There was light overflow at a few places in eastern Texas and Louisiana during the early part of the month.

*Pacific Slope drainage.*—Stream flow was greatly above normal in the Northwest due to an early melting of a heavy snow cover in Idaho, western Montana, and northern Utah. Some flooding was reported in Idaho and northern Utah.

### FLOOD STAGE REPORT FOR APRIL 1946

[All dates in April, unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest <sup>1</sup>	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE					
	<i>Feet</i>			<i>Feet</i>	
Saluda: Pelzer, S. C.-----	6	{ Mar. 29 30	(?) 1	6.5	Mar. 29
Savannah: Butler Creek, Ga.-----	21	Mar. 31	Mar. 31	21.4	Mar. 31
Ocmulgee: Abbeville, Ga.-----	11	4	8	11.9	6
Altamaha:					
Charlotte, Ga.-----	12	Mar. 31	14	14.5	9-10
Piney Bluff, Ga.-----	17	8	11	17.2	10
EAST GULF OF MEXICO DRAINAGE					
Flint: Albany, Ga.-----	20	1	1	21.2	1
Apalachicola:					
Chattahoochee, Fla.-----	20	Mar. 31	4	21.5 19.2	2 Mar. 21-
					22
Blountstown, Fla.-----	15	{ Mar. 11	23	{ 21.7 16.7 15.4 15.6	{ 3 15 22 28-29
		26	(?)		
Choctawhatchee:					
Geneva, Ala.-----	23	Mar. 29	1	26.6	Mar. 31
Caryville, Fla.-----	12	28	28	12.2	28
Coosa: Gadsden, Ala.-----	20	Mar. 29	6	23.8	Mar. 31
Alabama:					
Montgomery, Ala.-----	35	Mar. 31	3	39.4	1
Millers Ferry, Ala.-----	40	Mar. 30	7	44.4	4
Tombigbee:					
Lock No. 4, Demopolis, Ala.-----	39	Mar. 29	4	43.7	2
				{ 59.0 45.0 61.0 42.8 46.7 46.2 47.9 40.7 43.5 34.1	{ Jan. 23 Feb. 4 Feb. 21 Mar. 12 Mar. 21 2 3 Jan. 26 Feb. 25 Mar. 23, Apr. 4
Lock No. 3, Ala.-----	33	Jan. 7	7		
Lock No. 2, Ala.-----	46	Mar. 30	4		
Lock No. 1, Ala.-----	31	Jan. 9	8		
Pearl:					
Jackson, Miss.-----	18	Mar. 16	9	26.7	Mar. 27
Monticello, Miss.-----	15	Mar. 29	Mar. 31	15.2 14.0	Mar. 30 Jan. 12, 25
Pearl River, La.-----	12	Jan. 8	11	{ 16.0 15.2 14.8	{ Feb. 27 Mar. 18 Mar. 29
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Rock: Moline, Ill.-----	10	Mar. 4	4	12.4	Mar. 20- 21.
Illinois:					
Havana, Ill.-----	14	Mar. 19	3	15.0	Mar. 25

### FLOOD STAGE REPORT FOR APRIL 1946—Continued

[All dates in April, unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest <sup>1</sup>	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—Continued					
Upper Mississippi Basin—Continued					
Illinois—Continued	<i>Feet</i>			<i>Feet</i>	
Beardstown, Ill. ....	14	Mar. 20	4	15.2	Mar. 27-29.
Mississippi:					
Gordons Ferry, Iowa. ....	13	Mar. 18	6	16.1	Mar. 27-28
Clinton, Iowa. ....	16	Mar. 26	1	16.6	Mar. 29
Muscatine, Iowa. ....	15	Mar. 21	4	16.8	Mar. 28-30
Keithsburg, Ill. ....	12	Mar. 19	4	13.7	Mar. 29
Burlington, Iowa. ....	15	Mar. 27	1	15.2	Mar. 29
Keokuk, Iowa. ....	12	Mar. 15	8	16.0	Mar. 29-30
Gregory Landing, Mo. ....	12	Mar. 14	-----	15.3	Mar. 18
				16.2	Mar. 29
Quincy, Ill. ....	14	Mar. 15	8	18.5	Mar. 26
				18.2	Mar. 30
Hannibal, Mo. ....	13	Mar. 9	9	18.7	Mar. 26
				18.3	Mar. 30
				17.1	Mar. 26-27
Louisiana, Mo. ....	12	Mar. 6	-----	16.6	Mar. 30
Grafton, Ill. ....	18	Mar. 21	5	19.4	Mar. 29
Missouri Basin					
Osage: La Cygne, Kans. ....	25	24	25	26.9	24
Ohio Basin					
Ohio: Cairo, Ill. ....	40	Mar. 26	4	41.3	Mar. 31
White Basin					
White:					
Clarendon, Ark. ....	26	Feb. 10	-----	29.4	Feb. 26-27
				27.9	Mar. 31
				28.3	Jan. 24-26
St. Charles, Ark. ....	25	Jan. 15	-----	26.2	Mar. 31
Red Basin					
Ouachita:					
Camden, Ark. ....	26	Mar. 29	-----	45.3	Feb. 24-25, 27
Monroe, La. ....	40	Jan. 23	25	42.4	3
				52.9	Feb. 21-24
Black: Jonesville, La. ....	50	Jan. 30	14	50.8	4
				31.8	Jan. 13
				32.0	Feb. 13
				27.9	Mar. 11, 17, 19
				28.8	3
				37.0	Feb. 10
Lower Mississippi Basin					
Tallahatchie: Swan Lake, Miss. ....	26	Jan. 7	19		
Yazoo: Yazoo City, Miss. ....	29	Jan. 14	28		
Atchafalaya Basin					
Atchafalaya: Atchafalaya, La. ....	25	Feb. 15	17	26.9	Mar. 3-5
				26.0	7-12
WEST GULF OF MEXICO DRAINAGE					
Calcasieu: Kinder, La. ....	16	Mar. 30	3	16.4	Mar. 31
Sabine:					
Gladewater, Tex. ....	26	1	8	29.7	5
Logansport, La. ....	25	Mar. 28	Mar. 31	25.2	Mar. 30
Milam, Tex. ....	30	Mar. 28			
Bon Wier, Tex. ....	17	Mar. 28	9	18.6	5
Trinity: Liberty, Tex. ....	24	Mar. 30	Mar. 31	24.1	Mar. 31
San Antonio: Cibolo Creek, Tex. ....	26	23	23	26.0	23
Nueces: Cotulla, Tex. ....	15	24	26	18.1	24

<sup>1</sup> Provisional.

<sup>2</sup> Continued at end of month.